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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/001,296
Filing Date: November 02, 2001
Appellant(s): VASUDEVAN ET AL.

David J. Gaskey
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 24, 2008 appealing from the Office action mailed November 7, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,018,528	Gitlin et al.	1-2000
US 6,252,854	Hortensius et al.	6-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gittin (6,018,528) in view of Hortensius (US 6,252,854)

Regarding claims 1, 10 and 19, Gitlin describes an air interface transmission (inherent of transmitting, receiving and allocating) method for CDMA/TDMA/FDMA users (mobile devices) comprising:

transmitting/receiving information over a shared wireless channel by varying a time span (total time slots to transfer entire information payload) and at least one of a bandwidth (frequency bands or code space) and a duty cycle (# of time slots for a user)

(fig. 6 and 7, where # of frequency bands, code space and/or time slots are varied), wherein the time span is based on the channel quality (col. 8, lines 42-45, where the scheduler varies its scheduling (time span) according to the Bit Error Rate (BER) (channel quality)).

Gitlin fails to describe using the rate of change of its channel quality of BER for his adjustments in wireless communication.

Hortensius describes using the speed (rate) of change of its link (channel) quality for adjustments in wireless communication (title & abstract).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use of "rate of change in channel quality" as in Hortensius' wireless communication method in place of using the "change quality" in preventing interference from exceeding the acceptable threshold in the wireless transmission method of Gitlin.

The motivation for combining the teaching is that it allows a station to dynamically calculate the proper & optimum rate with to receive & transmit data to another wireless station (Hortensius, col. 3, lines 29-39).

Regarding claims 2 and 11, Gitlin describes at least one of a bandwidth and a duty cycle are varied as a function of a channel quality (BER) of a wireless receiver (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 3 and 12, Gitlin describes the channel quality comprises the bit error rate (BER) of a wireless link between the wireless receiver and a wireless transmitter (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 4 and 13, Gitlin describes the channel quality comprises the interference from information transmitted to at least one other wireless receiver (col. 8, lines 42-45, "The scheduling process accounts for granting the various users codes so that the BER caused by the total level of interference from all the transmissions remains below the acceptable threshold.")

Regarding claims 5 and 14, Gitlin describes the step of transmitting/receiving a signal corresponding with a transmission format having a time span and at least one of a bandwidth (frequency bands or code space) and a duty cycle (time slots) to be employed for the information to be transmitted (fig. 6 and 7, where the transmission format of each user comprises certain frequency bands, code space and/or time slots).

Regarding claims 6 and 15, Gitlin describes the signal comprising a bit sequence corresponding with at least one of the varied time span (time slots) and varied bandwidth (frequency bands or code space) (col. 2, lines 22-25, "The individual time slots 24 can transmit a given number of bits for voice (n bits) or video (m bits) transmissions, using different amounts of bandwidths.")

Regarding claims 7 and 16, Gitlin describes the transmitting/receiving a signal comprises:

determining the transmission format (fig. 6 and 7, where the transmission format of each user comprises certain frequency bands, code space and/or time slots);

recalculating the bandwidth (frequency bands or code space) of the transmission format if the time span (interval of time allocated to download the entire data [payload], depending on rate of variation [i.e. channel quality] as defined on p.13 of specification) is greater than an information payload to be transmitted divided by a data rate (i.e. the anticipated interval of time **not** accounted for any channel quality variation) of the wireless receiver (col. 8, lines 52-54, "Scheduling may thus be used to efficiently pack each time slot within overall medium 40, while maintaining acceptable bit error rates.", where the scheduler dynamically recalculates the bandwidth based on varying channel quality.)

Regarding claims 8 and 17, Gitlin describes the transmitting/receiving a signal comprises:

determining the transmission format (fig. 7, where the transmission format of each user comprises certain code space and/or time slots);

recalculating the duty cycle (# of time slots for a user per a transmission window as in fig. 6 or 7; each duty cycle is a fraction of time span as per definition on p. 13 of the applicant specification & each duty cycle transmits a portion of the payload.) of the transmission format if the time span (interval of time allocated to download the entire data [payload], depending on rate of variation [i.e. channel quality] as defined on p.13 of specification) is greater than an information payload to be transmitted divided by a data rate (i.e. the anticipated interval of time **not** accounted for any channel quality variation)

of the wireless receiver (col. 8, lines 52-54, "Scheduling may thus be used to efficiently pack each time slot within overall medium 40, while maintaining acceptable bit error rates." where the scheduler dynamically recalculates the bandwidth based on varying channel quality.)

Regarding claims 9 and 18, the definitions of time span and duty cycle are interpreted by the examiner as provided in claim 1. The data rate is interpreted by the examiner as the # of time slots multiplied by # of frequency bands/code space of a user per a transmission window, which is subject to change by the scheduler (col. 8, lines 52-54). Hence, by such definition, Gitlin teaches that the duty cycle will be determined by (a function of) dividing the information payload by the product of the data rate and the time span.

(10) Response to Argument

I. Rejections under Gitlin and Hortensius: Claims 1-19

On p. 3 last paragraph, the appellants summarize their argument that prima facie case of obviousness is missing because the Hortensius reference will (1) change the operation of the Gitlin reference and (2) does not provide any benefit or usefulness in the context of the Gitlin reference.

Specifically, the appellants argue **from p. 4 paragraphs 3 through p. 5 paragraph 2** that the Gitlin reference is concerned with avoiding code interference between assigned codes in the CDMA system, and "implementing a rate of change in channel quality from the Hortensius reference (*or any other reference for that matter*)

and use that in place of Gitlin's approach for avoiding interference between codes, that would completely change the principle of operation of Gitlin reference."

In response to appellant's argument, the examiner respectfully disagrees with the argument above.

The examiner notes that both the Gitlin and Hortensius reference directs to calculation for data transmission within the same field of wireless communication. The examiner *merely* deploys "the rate of change of channel quality" value used in Hortensius in replacing "the change of channel quality" value used in Gitlin. For such calculation means, one of ordinary skill in the art can easily replace the measured value of "change in channel quality" used in Gitlin with "the rate of change in channel quality" used in Hortensius to result better success in data transmission. Since a proper suggestion/motivation has been provided and the combination of Gitlin and Hortensius described all claimed limitations argued, the examiner concludes that prima facie case of obviousness has been provided.

On p. 5, paragraph 3, the appellants similarly argue that Gitlin cannot be combined with Hortensius because it will not yield a workable result. The examiner has addressed (above) that using another measurement type value for calculation of transmission is well-known and has a high expectation of success (workable result).

On p. 5 last paragraph, the appellants argue that Hortensius does not provide any benefit to the Gitlin reference. The examiner has indicated above that a proper motivation (benefit) has been provided to combine Hortensius with Gitlin.

From p. 6, paragraph 3 to p. 7 paragraph 2, the appellants argue that the repetition rate of the Hortensius reference is not the same thing as and has nothing to do with the scheduling used in the Gitlin reference. The examiner asserts that this is of piecemeal analysis since the examiner is merely using another measurement of “a speed of change in the link quality” for the measurement used in Gitlin.

From p. 7 paragraph 3 to p. 8 paragraph 1, the appellants re-argue that combining Hortensius will change the principle of operation of Gitlin. This argument has been responded above.

On p. 8 second paragraph, the appellants argue that the Gitlin reference does not use channel quality for varying a total time slots to transfer entire information payload as suggested by the Examiner.

In response to appellants’ argument, the examiner respectfully disagrees with such argument. The Gitlin reference has described the claimed language of varying a time span and at least one of a bandwidth and a duty cycle as noted in the rejection. Additionally, Gitlin col. 7, lines 8-10 in conjunction with col. 8, lines 27-29 describes that Signal-to-Interference ratio (S/I), which determines the Bit-Error-Rate (BER) (channel quality), is used for the scheduling process. Hence, Gitlin does suggests using channel quality for varying (scheduling) the transmission bandwidth and duty cycle (see also Gitlin fig. 7 in view of fig. 2a of instant application for varying/scheduling code/time).

On p. 9 second paragraph, the appellants re-argue regarding the non-existence of prima facie case of obviousness which has been address above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Warner Wong

/W. W./

Examiner, Art Unit 2616

February 28, 2007

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